

A LARGE-AREA SHOWER ELECTRON BEAM IRRADIATOR WITH FIELD EMITTERS AS AN ELECTRON SOURCE

ABSTRACT

An electron beam irradiator capable of performing electron beam irradiation in a wide area at a high current density with a field emitter tip. The electron beam irradiator comprises: a vacuum chamber having a beam irradiation window formed longitudinally in an outer periphery of the vacuum chamber; a cathode placed centrally and longitudinally inside the vacuum chamber, and having a field emitter tip formed on the cathode, corresponding to the beam irradiation window; and a high voltage supply placed at one end of the vacuum chamber, and adapted to apply high voltage toward the cathode. The electron beam irradiation can be made in a wide area without using an electromagnet as well as in a high current density without using a heater such as a filament or an additional power supply, thereby to ensure a simplified structure as well as a reduced size.